

Notice of Allowability

Application No.

09/834,954

Examiner

Johannes P Mondt

Applicant(s)

TERASHIMA, TOMOHIDE

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to ~~NATHAN A. FLYNN~~ issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

**SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800**

1. ☒ This communication is responsive to 8/29/2003.
2. ☒ The allowed claim(s) is/are 1-4 and 6-13.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☒ including changes required by the proposed drawing correction filed 28 January 2004, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- no PTO-892
- 1 ☒ Notice of References Cited (PTO-892)
 - 2 ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
 - 3 ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No. _____
 - 4 ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

- 5 ☐ Notice of Informal Patent Application (PTO-152)
- 6 ☐ Interview Summary (PTO-413), Paper No. _____
- 7 ☐ Examiner's Amendment/Comment
- 8 ☒ Examiner's Statement of Reasons for Allowance
- 9 ☐ Other

DETAILED ACTION

Response to Amendment

Amendment filed 01/28/2004 forms the basis of this Office Action. In said Amendment Applicant amended claim 1, the Specification and Figures 32 and 33. Claims 1-4 and 6-13 are in the application.

Allowable Subject Matter

1. ***Claims 1-4 and 6-13*** are allowed.
2. The following is an examiner's statement of reasons for allowance:

With regard to claim 1 (and dependent claims 1-4 and 6-9): with reference to the rejection of claim 1 included in the previous Office Action, although Mosher et al (5,256,582) teach all limitations of claim 1 prior to the most recent amendment the second buried impurity region of second conductivity type is *not* "positioned between said first buried impurity region and said semiconductor substrate along a line normal to said main surface".

With regard to claim 10 (and dependent claims 11- 13): with reference to the rejection of claim 10 included in the previous Office Action and Remarks by Applicant in said Amendment filed 8/29/2003, Mosher et al teach the semiconductor substrate, the semiconductor layer, the buried impurity region, the first and second impurity regions, the semiconductor element and the depletion layer; however a gap part in the buried impurity region, for which the selection

according to the most recent rejection was region 24 in Figure 11 is not included in the teaching by Mosher (the DUF is n-type, due to doping with antimony, see Mosher et al, col. 4, l. 64 – col. 5, l. 3, and hence the DUF region cannot be considered as part said buried impurity region, while the separate portions of the DUF region are not connected to any impurity region, but instead being fully embedded in epitaxial layers); furthermore, an alternative interpretation of Mosher et al, Fig. 11, in which regions 42 are selected as the buried impurity region as claimed implies the failure by Mosher et al to teach the claimed “gap part” to be positioned “directly beneath” any region that would qualify as “second impurity region”. Said gap part is disclosed through the Specification, page 25, lines 16-19, in combination with Figure 11 after implementation of the change in the Drawings as included in aforementioned Examiner’s Amendment.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P Mondt whose telephone number is 703-306-0531. The examiner can normally be reached on 8:00 - 18:00.

Art Unit: 2826

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 703-308-6601. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JPM
February 20, 2003